MONTROSE SCIENTIFIC REVIEW BOARD MEETING THREE
March 20, 2002
Attendance: Mike Donlan, Ralph Appy, John Cubit, Jim Allen, Pam Castens, Ken Nielsen, Dennis Bedford (DFG, manager of artificial reef program for the state of California, fishing monitoring), Patty Velez, Joe Meistrell, Fred Schauffler, Rich Gossett, Guang-Yu Wang (Santa Monica Bay Restoration Project), Alyce Ujihara, Ann Bailey, Jan Stull, Steve Schroeter, Rich Ambrose, Harry Ohlendorf, Ann Jones, Bill Connor

OEHHA has responsibility for adjusting the commercial fishing ban area based on the data EPA collects. Also looking at minimizing exposure.

Agenda
1. Species and Location Selection
   (a) Data needed for evaluating locations for constructed reefs to benefit shore fishers
   (b) Public information needs for shore fishers
   (c) Public information needs for boat fishers
2. Number and size of fish to be collected
3. Identification of contaminants for analysis
4. Analysis Plan for Initial Round of Testing
   (a) Locations fish will be tested from
   (b) Species that will be tested
   (c) Tissues and number of samples to be tested
   (d) Contaminants to test for
5. Sampling methods
6. Laboratory methods

Cubit:
Fish on reefs that eat off of hard bottom tend to be cleaner than fish in similar areas that feed over soft bottom. Hard bottom – not frequented by white croaker (Allen study). Pelagic fish, tend to be generally low in contaminants

Physiology: higher lipids = higher contaminants

Reef: only if it replaces contaminated fish with clean fish.

Species: Bedford: were lobsters, other invertebrates considered?
Cubit: that's a separate project, since the restoration is what we're focused on – don't know what the restoration options would be with invertebrates.

How Reef Issues are addressed in the plan:
Cubit: pointed out map with the species of interest.

Port of LA issues (Appy): This August, will be deepening from –45 to –53 feet. In past several years, they have created 200 acres of shallow inside the breakwater at Cabrillo; will create 54 new acres of hard/shallow bottom. Covered with fine silt? May affect sampling and future plans. –20feet is target depth. Soft bottom. Potential of putting in boulder field. Would need to wait until the sediment settled. Happy to work with MSRP. Contaminant load in channel: working with LA regional sediment contamination taskforce. Reviewed dredge plan with them, will use confined disposal area for anything too contaminated for ocean dumping. Dredged from -35 to -45 in the mid 80s, fill formed Pier 3.

Consolidated Slip is a source of contaminants every time it rains.
Wang: This will be right on top of hot spot, what will be covered? Appy: Areas more shallow than –18ft not covered, so as not to disturb biology. Hotspots are not clearly defined. Won't necessarily be covering it all. Has some sediment contamination data.

Appy: if we sample in August, we should beat their (Port of L.A.) work. And could then do follow-up.

(Appy passed out their baseline study initial data. Nielsen did the sampling.) Has retaining dike, then gradates out behind that.

Exhibit 4-1. Information relied on to select species for consideration.
Additional species
Allen: covered fish likely attracted to reefs, nocturnal fishes. (from his previous emails)

California Sheephead
Barracuda – a major catch around Palos Verdes peninsula some years for the party boat crowd (Bedford)
Cubit – This is phase 1. Catch what we can, but still keep notes of what we would have caught if could
Schroeter – you're likely to get barracuda around the edges of kelp beds, as well as white seabass and yellowtail.
Meistrell – nobody is going to tolerate a kelp bed near their piers.
Cubit – on the ocean side of the breakwater?
Bedford – don't think a kelp bass
Nielsen – Corbina caught on all bottoms
Bedford – supports adding sheephead – recent years party boaters are going towards that.
Cubit – every species at every site will be too much – Nielsen base it on what we catch, then decide what to analyze.
Cubit – won't get the same species of perches/rockfishes

Public Information
Shore-Based fishers: Looking at biomass > 5000. Schroeter – worried that advisories are for rock-attracted fish.

Allen – pile perch eat a lot of mussels
Nielsen – hard to get a lot of those, but could probably be done.

Ujihara – are we seeing anything mis-represented due to El Niño?
Allen – Lots of barracuda during El Niño, some perch moving to north of Bight.; could increase migratory species from south. Since 1982 El Niño, fewer perches and rockfishes. Sheephead – Bedford thinks it's just something else has been over-fished, rather than a climatic/regime shift.
*look at most recent catch of sheephead (Lots from boats. Definitely increasing.)
sheephead = H/S bottom
*0-3 mi need to separate Catalina, San Clemente islands

Consider adding yellowtail and white seabass.
Schroeter – working under the assumption that reefs and public information, how to prioritize and set criteria.
One of criteria – use RecFIN to determine what is important.

Species that we're encouraging – need to check for mercury
Leopard shark
Allen – spiny dogfish
If we can't catch this regularly, it's not that important. Cubit – interested in chronic issues, not acute toxicity.
Yellowtail, White seabass would be once in a blue moon near reefs.
Catching 15 legal yellowtail or white seabass would be very difficult.

Opaleye – herbivore, fairly low in contaminants Allen thinks.

Separating out rockfishes and surfperches – see Jim Allen's notes.
Separate based on feeding habits.
Doesn't think people can tell them apart – Cubit says that's only important for implementation.
What does this mean for sampling? Divide into the two groups?
LA Breakwater – -55 ft don't really see much rockfish
Historically a lot of blue rockfish in shallow areas.
Ambrose – except for blue, willing to lump everything. But not willing to with surfperches. Wants to keep out the California scorpionfish.
Allen – not really willing to say any of the rockfish are more likely to be contaminated. Possibly blue would be less.

Ambrose – "Catch all rockfish, except blues"
Ambrose – Surfperches
Cubit – if surfperches and rockfish are likely to show up on reefs, do we just take what we get, or do we do more specific sampling. For reef purposes, catch what we catch.
Schroeter – is there something that tells you to keep certain types of fish if you catch a lot of them.
Bedford – outside of breakwater was not representative of normal species you'd expect (urchin barrens)
Cubit – but we just want to know how contaminated the fish that are there are, not looking for species.
Appy – outer side of breakwater is straight down, not a rocky slope. Wall down to soft bottom.

Donlan – do we want a distribution of species within surfperches?
Allen – have the list posted every day – (and have SRB checking on it for recommendations on amending sampling?)

Ambrose – planktivores vs. Benthic is Allen's idea. He thinks we should split out by hard/soft bottom feeders as well.

*Check Pollock 1991 to see if we can refine the surfperches, combine with RecFIN data. (3/21 no luck)
Allen: What you'd catch in the deeper water over reefs: (SB)White seaperch, shiner perch; (HB) black perch, rubberlip seaperch, pile perch.

Wang – we are jumping back and forth too much; which is more a priority – reefs or public information.

Cubit – Now we're going to stick exclusively to reef purposes.
Marina Del Rey – furthest north
Long Beach/Sunset Beach – furthest south

Schroeter: Fishing Pressure, travel keeping you close; Contaminants pushing you further away.
If you stuck a pier at Huntington Beach, it wouldn't be very contaminated anyway.
Provided that we sample a big enough sample range, we can cover both reefs and public information.

Nielsen – Sampler needs flexibility in sampling range, and also needs boundaries specified.
(Cubit – plume from Palos Verdes is further from land at Marina del Rey, could run into it if you fish ¾ mile from shore where Nielsen says there a nice rock and 30ft deep fishing.)

Cubit goes through sites:
Cabrillo: Prime candidate, consider with Port of LA projects. Also could consider building it on the outside, where it would be a lot cleaner.
Appy – Fishing off of the breakwater is illegal.
Cubit – making a structure where they won't be killed fishing is part of the consideration.
Castens – want to sample at enough sites that we can have enough data points for where it would be reasonable to start evaluating locations.
Site 1: inside LA Breakwater
Site 2: outside LA Breakwater
Rocky area along edge of Cabrillo good for sampling.

Ambrose: is philosophy you want to know how close you can get to contaminated areas and still fish. Should sample on Palos Verdes then? What if the rocky areas are clean?
Cubit – not willing to assume all areas are clean based on Palos Verdes rocky being clean.
Ambrose – not sure trophic relations are going to be the same if they're not in a true rocky area.
Might overestimate the contaminant levels that would be present in a rocky bottom area
Bedford: address why to build reefs over rocky areas – it's really good to extend a natural area – since a large habitat area is more useful than lots of small areas. Addresses Ambrose contaminant issues on small habitat areas.
Appy – also contemplating siting reefs off the breakwater.
Ambrose – need to sample immediately downcoast and upcoast of Palos Verdes. With list of sites, have column with checkmarks for why we are sampling (both reef and public info)

Site 3: Palos Verdes

Pier J/Shoreline Park (Finger Piers): does anyone see a problem with lumping these together?
Ambrose: so if Cabrillo is clean, don't have to analyze here
Castens: need to test at additional sites just so we have more to choose from
Ambrose: but shouldn't it be a logical relationship? If it's clean enough at Cabrillo, assume this is clean.
Schroeter – need to have some sort of function with distance.
Appy – thinks this would be a good spot. Deep.

Site 4: Pier J/Shoreline (likely analyzed for reef purposes)

Belmont Pier/ Alamitos Bay Jetties
Belmont: most fished pier. Oil islands + jetties. Prime place to build a reef if we need a reef down here. Might not analyze everything based on relationships we find at Pier J and Cabrillo

Site 5: Belmont Pier
Site 5a: Alamitos Bay Jetties

Seal Beach pier – in between two big stretches of rocky construction, San Gabriel River and Anaheim Bay Jetties. If these other places show up clean, these fish would just sit in the freezer for these purposes.
Bedford – Thinks there's a small reef near island white. (small artificial reef)

Site 6: Seal Beach – only analyzed if others turn out to be too contaminated.

King Harbor, Hermosa/Redondo Piers
Deep water right off of the Redondo Pier

Site 7: King Harbor

Marina del Rey and Venice Pier
Artificial reef, 60-80 ft off of Marina del Rey. Also used in Pollock Study.

Site 8: Marina del Rey and Venice Pier

Ambrose: are we considering off-shore fishers for reef purposes?
Cubit: They have other options; the shore-based get the priority. To a much greater extent they can be steered to cleaner locations and species, even if they are nearshore.
Ambrose: should we consider it, still? He can't think of any recommended places.
Gossett: maybe keep in mind since it's the mouth of Ballona creek – the second largest one in the area.

Nielsen: what's the sizing of the sampling areas? That **has** to be in the plan. Cubit: open up for brief discussion. Will involve QEA. Point advisories vs. Non-point advisories.

PUBLIC INFORMATION
EPA has reasons, Trustees have reasons, they overlap in places [Risk vs. Clean Fishing]
"give public information that certain fish at certain locations are high in contaminants and shouldn't be caught Other fish at other locations are below trigger levels.' By combining risk info from EPA point of view and trustees desire to encourage certain fishing. People can't conclude that because there's no advisory the fish are safe to eat.

Schroeter a criteria of prioritizing for reef is on the advisory. For public info, not on advisory is almost more important, to try to cover new species.
Cubit: but there was under-extraction in places, and over extraction in places (Malibu)
Big thing – it's over ten years old.
LACSD – even a slight upward trend in certain species. Not drastically going down recently.

EPA: wants to help state make an advisory, given the new set of data.

*Add Newport. (Fishing advisory for California corbina – soft bottom area) to table 4-2

Allen – Is there an advisory for boats over Hyperion pipe?
Nielsen – sampled Hyperion pipe in 1991

Table 4-4 Anything shaded is a tentative "must catch"
If there was nothing reported caught at that site, it doesn't go on the "must catch" list

Cubit – wants to make sure that even some of the fish with zero RecFIN catch reported are still caught.
Ambrose: want to catch all the hard bottom that we can. Particularly for reef sites, want to get black perch whenever we can.

CONFUSION "minimum required" versus "what we're going to catch and sample"
Mark: this is completely wrong for Santa Monica Bay
*add Allen/Velez consumption database.
Santa Monica Bay Pier/Jetty/Beach Fishing by number of fish observed (from Allen et al. 1996)
1. **Chub mackerel (476)**
2. **White croaker (167)**
3. **Other species (106)**
4. **Jacksmelt (64)**
5. **Opaleye (31)**
6. **Pacific bonito (25)**
7. **Unidentified surfperches + black perch (23)**
8. **Yellowfin croaker (19)**
9. **California halibut (12)**
10. **Pacific barracuda (4)**

• how many data points are there for each site

Nielsen: they can catch anything that is there. Thinks we're going to catch the vast majority of all these things.

Cubit – advisories are all on tiny site specific bases. Would rather see, esp.over Santa Monica Bay, past Redondo to Malibu, treat this as a whole area that we would divide into areas.

Nielsen – certain fish for Pollock that they caught at every single site.

Cubit: Treat as a continuum, break up into segments.

Schroeter: this doesn't offer a very good way to stratify our sampling and effort.
Cubit – chuck basing this on advisories, break up into segments. Sample every other segment. If gradient isn't smooth, sample the in between ones.

e.g. break Santa Monica Bay into 5 segments between Palos Verdes and Malibu/Pt Dume.
Analyze 1,3,5 to begin, if they're the same or linear, don't do intermediate sites. Schauffler – we've got other outfalls and contaminants, might not be covering all of them.

Schroeter – do segments plus all the piers? Consensus: too many piers for that to be feasible.
Meistrell – Piers are not likely sources of contamination. Marinas are – they can be considered to have the highest contaminant levels. General concern voiced that OEHHA might not be willing to use any of this data if the study is based on segments rather than discrete locations. Wang thinks they (OEHHA) would be open to idea of extrapolating/zoning the bay.

Cubit – Not clear what minimum will be – not deciding zones today

Donlan – Can we pinpoint what species we will bluntly require?

When do we come back and target the fish we don't have? How long do you try to do that?

Allen's Regional surveys : X amount of effort if you don't get your original composite. (for their 10 minute trawls, they could do up to an additional 20 minutes)

Donlan: Maybe lump some of the hard-bottoms together. Have to get at least 3 of this set.
Cubit – make clear that they're not for analysis, just collection.

Nielsen – there will be fish you **have** to get.
Ambrose – problem seems to be filter, not the idea; let's go through the list and pick the targets by consensus.
(Allen prior list of crucial species)
White croaker
Black perch
Opaleye
Kelp bass
Yellowfin croaker
Corbina
Mackerel

Gossett – can we just do the hb, sb, etc breakdown?
Allen – thinks we can narrow it down a little more.
Cubit – priorities differ according to the purposes (reef vs. Public information) Postpones – send to management committee.
Allen – set up priority 1 and priority 2 species.
Nielsen – we need a specific size range
We will set this up with a smaller group.
Need to do more sampling closer to Palos Verdes (smaller segments)

Marine Preserve – DFG. 1-2 years at least, whole other round of public comment. Coastal areas might end up not being selected.

Wang: need to make sure that particular sources of contamination are considered. Treat those differently.

Schroeter – cross-classification. Going to end up with huge numbers of fish. Alternative to do this adaptively – choose indicator species. Look at its spatial patterns. Fewer species at lots of sites. A series of trawls, since we know we'll catch white croaker everywhere.
Cubit – there's all this stuff that's never been tested. Don't really want to limit to white croaker.
Ambrose- it's like a pilot study, since we know that white croaker pick it up. They'll be a good indicator of spatial contamination. (2 collection phases) Then, can still do adaptive analysis in the second phase.

Cubit – remember, it's hard to map a white croaker to a pelagic or a hard bottom.
Ambrose – this is just for public information. Pelagic spatial info just isn't important. Use these data to define the segments.

Lots of ten year old data to tell us this information.

Allen – from 1990 data, had white croaker all along the shoreline, DDT relatively flat. Differs from the RecFIN, that show the white croaker as being really clustered.

Gold – thinks the 10 year old data is fine for setting this up. (defining segments)
Schroeter – sampling white croaker is useful if you don't have a realistic basis for defining these data.

Connor – gradient we really want to define is where it goes from dirty to clean.

Schroeter - may be moot, if we have these trawls collected uniformly. Don't sample logarithmically, sample linearly. Connor – different gradient for croaker vs. Reef species.

Mapping of these data? Cubit says he distributed it all except past 4-5 yrs LACSD, Allen's Data, Montrose CC data, CFCP data.

Allen – barred sandbass, diurnal equivalent of California scorpionfish. There will be a lot at a reef, when they're not spawning in the mud. Popular on shallow and deep reefs.

Bedford – yes, these will be gathered in a reef. Ambrose/Schroeter : Increased population over reef.

Specify whether things are being used for public info or reef purposes

What We've Decided so Far.
(1) Sample reef locations
(2) Priority is to S. side of Palos Verdes and Cabrillo for analyses
(3) Go S. and N. from there to discern patterns
(4) Species on reefs – take fish most likely to be caught that we can sample everywhere (sculpin, kelp bass, opaleye, black perch, rockfishes) + soft bottom to show if reefs are required (white and yellowfin croakers, guitarfish)
(5) Public info – divide into segments. Sub-group will decide this using existing gradient data. Adaptive analysis decisions – do we skip particular areas? One sample set from each segment.

Boat Based Fishing –
We have the locations from advisories. Short Bank, Horseshoe Kelp. Some of offshore sites are used to determine land based advisories.
Will be subject to a management decision.
Gossett – boat fishers more affected by the public info stuff.
Bedford – not sure that's how they'd be best served. That's not compensating.

Velez – people were targeting white croaker. (4 guys in little aluminum boats, going out to sandy bottom, deep water)

Allen – could be useful to try to shift focus to yellowfin croaker if it has lower contamination levels.

City of LA data – Santa Monica Bay Not much white croaker.
Allen – Bight '94 - Out of 114 sites, only found white croaker at 3. Sticks to shore during the day.
LACSD data kelp bass, white croaker, Dover sole, red sea urchin, some black perch data (data 4-6 yrs old) All sampled by zone, nothing deeper than 450 ft. All over Palos Verdes shelf. White croaker – at night, more like 150 ft. deep.

Wang – there is enough knowledge to do targeted work based on what is heavily fished. Maybe add random or targeted screening of fish brought back by boats. (private boats)
Ujihara – add a location off Palos Verdes shelf too. Nielsen – inside 50 m?>
Wang – if it's low there, it's low everywhere.
Cubit – Fish Block information, notoriously incomplete and unreliable.
Bedford – database with partyboat logs. Ramp survey catching private boaters. **Contact him to get this**
Nielsen – most sportfishing along Palos Verdes is along the reefs near shore, pelagics far off.
Ujihara – now RecFIN in coordination with DFG.
(GROUP: Ujihara, Bedford)

NUMBER AND SIZE
Number:
Power analysis or something to figure the number of fish to do?
Schroeter – Looked at standard deviation as a function of the mean for the Pollock data (didn't know it was composites of 4 fish)
If you're going to sample, do you want to tell one place from another, one survey to another survey
Cubit – collect fish you think would cover your variability.

Gossett – will compare geographically?

Cubit – no, don't need to do that with statistical confidence. No amount of sampling at one time is going to make a meaningful sample that everything is statistically significantly below a threshold.

For practical reasons, we're going to have to stick with a sample size. Expects e.g. Cabrillo, screening for reef purposes, white croaker are between 1-15 ppm (ave of 5 ppm) and reef fish are 0.1 ppm. Would do it. If reef fish were 1 ppm, wouldn't. Not looking for hairline differences. Would need guidance from EPA/OEHHA is it's enough of a difference to be statistically significant from a health risk point of view.

Connor: Risk values are based on mean values, but it's not part of the risk calculations.

Ambrose: three levels of detail of analysis that we could care about. (1) places to put a reef – could just do more sampling at a specific site. (2) this phase – collect a certain number of fish, and then just analyze ten. Is that enough for a reasonable decision that we are above or below the trigger level? On the places we're close, go back and analyze more fish.

Schroeter – take 15, analyze 10 is probably a fine way to go.

Connor – power analysis depends on size of difference we're trying to detect (hot fish to threshold) and the variation in the data. Determinant is how hot the fish are now. Use some of the old data to determine what kind of variability we could expect.

Ambrose – thinks we can play with these data to get a better estimate of what the sample size should be?

Cubit – we have good data where levels are high. (LACSD)

Allen has some individual fish data in Santa Monica Bay? From trawls?

Stull – didn't Bob Smith do a bunch of power analysis on this? For seafood consumption study, Velez thinks. 1242 successful interview (1100 was the minimum).

Ambrose, thinks it's a bit difficult to justify just 10 – since it might not be the same everywhere.

Stull – Brock Bornstein, too.

Wang will talk to them about this. Not sure if they have a recommendation based on power analysis or not.

Stull – did power analysis on numbers of individuals to sample, she thinks.

SIZE

Truncate at the legal limit.

Ambrose – if it's a positive correlation, you are being conservative and overestimating the risk. That's probably not a big deal.

"This analysis does not include fish below the legal limit" (make sure this is clear)

Nielsen – do we want to specify that they're all a particular length? Or in a specific set of ranges?

*figure out if we need to describe a distribution.,

IDENTIFICATION OF CONTAMINANTS FOR ANALYSIS

*Send out CFCP data to SRB, with map of sites.

Donlan gave overview of the table 4-6.

Cubit – remember, we don't want to send people to large doses of other contaminants.

Hg – fairly constant

Gossett – thinks arsenic is fairly natural. (natural doesn't necessarily mean

Allen – only fish with high arsenic levels are polychaete-eating fish. (Newport Bay)

Ujihara will get some studies on arsenic.

HCB:

Dieldrin: check the oral slope factor (**Confirmed**: it should be 16, not 1.6; all screening values should be 10x lower)

Connor – asked about price, Gossett – 5-10% per new chemical

Bailey – the more items you add, the less exact you are.

Chlordane – adaptive analysis. i.e. inside and outside the harbors, if inside hot, outside cold; then only evaluate inside. Since they are at similar levels to DDTs, and have the same screening values, fish will get kicked out based on DDTs/PCBs before the others. Gossett – never seen a chlordane level that was higher than DDT level in sediment or fish tissue. DDT is an adequate proxy.

Allen – 1994 looked at a series of pesticides; didn't find (no harbors) Found in 98 in harbors. (but data are not available yet – probably will be in a few months)

Gossett – Bight 98 did mercury holding study, every 3 months for 1 year. That was fine, and used a six month

holding time. (EPA = 28 days) (Lake Michigan Mass Balance = 3 years)

Ujihara – dioxins – SF? They found it in 3 of their composites at 5-10x the screening values (2,3,7,8-TCDD) in white croaker. Do a few samples? Cubit asked how expensive? Lots of laughs. Meistrell – do we have enough data to know that dioxin isn't the driving force?

Connor – recommends doing a small pilot study

Ambrose – do some with a high level and some with a low level of DDTs/PCBs, to see what the driving force is. Particularly look at some with low levels.

Cubit – Make sure you include places that are near likely sources of dioxin contamination.

Connor – Did we study dioxin in marine mammals during damage phase?

Bailey – Yes, but no other species. Found it in marine mammals. Could look up concentration relative to DDTs/PCBs.